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<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/993,660	SAKAI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Marie R. Yamnitzky	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed December 15, 2003.
2. ☒ The allowed claim(s) is/are 12-14 and 16-18 (renumbered as 1-6, respectively).
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

#### Attachment(s)

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>02272004</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|   | 9. <input type="checkbox"/> Other _____  |

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A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' amendment filed on November 25, 2003, which cancels claims 1-11 and adds claims 12-19, has been entered.

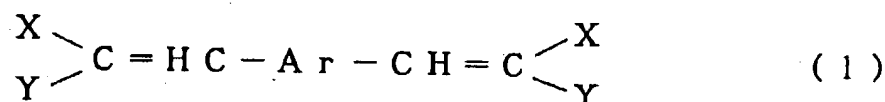
An examiner's amendment to the record appears beginning on the next page. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Charles Wendel on February 27, 2004.

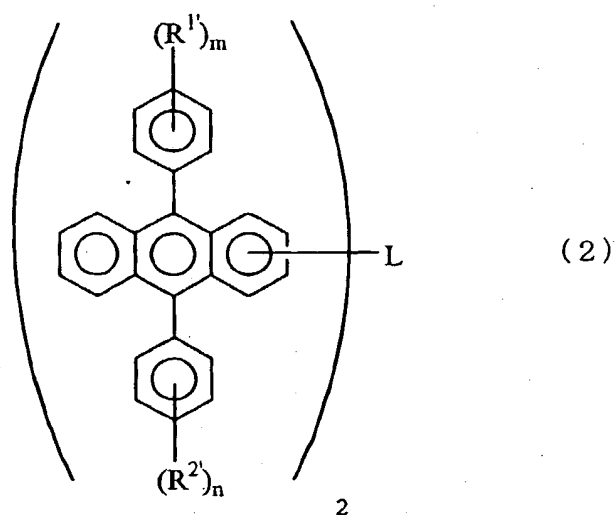
The claims have been amended as follows:

1. to 11. (Canceled)

12. (Currently Amended) In an organic electroluminescence device comprising a pair of electrodes comprising an anode and a cathode and a layer of organic compounds comprising at least an organic light emitting layer and disposed between the pair of electrodes, wherein the layer of organic compounds comprises a light emitting material compound represented by the following general formula (1):



wherein X and Y each independently represent a substituted or unsubstituted aryl group having 6 to 50 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3 to 50 carbon atoms and may represent the same group or different groups and Ar represents an arylene group having 6 to 80 carbon atoms, a polyarylene group, a divalent triphenylamine residue group, a divalent heterocyclic group having 3 to 80 carbon atoms or a divalent group formed by bonding said groups to each other, the improvement being that the layer of organic compounds contains a substance for suppressing crystallization that is a bis-condensed aromatic cyclic compound represented by following general formula (2):



wherein  $R^1$  and  $R^2$  each independently represent a substituted or unsubstituted alkyl group having 1 to 30 carbon atoms, a substituted or unsubstituted cycloalkyl group having 5 to 30 carbon atoms, a substituted or unsubstituted aryl group having 6 to 30 carbon atoms, a substituted or unsubstituted alkenyl group having 3 to 30 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 30 carbon atoms, a substituted or unsubstituted aryloxy group having 6 to 30 carbon atoms, a substituted or unsubstituted amino group or a substituted or unsubstituted heterocyclic group having 2 to 30 carbon atoms and may represent the same group or different groups;

$n$  and  $m$  each represent an integer of 0 to 5, when  $n$  represents an integer of 2 or greater, a plurality of  $R^1$  may represent the same group or different groups and may be bonded to each other to form a cyclic structure and, when  $m$  represents an integer of 2 or greater, a plurality of

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R<sup>2'</sup> may represent the same group or different groups and may be bonded to each other to form a cyclic structure; and

L represents a single bond, a substituted or unsubstituted arylene group having 6 to 30 carbon atoms, a substituted or unsubstituted alkylene group having 1 to 30 carbon atoms, -O-, -S- or -NR-, R representing a substituted or unsubstituted alkyl group having 1 to 30 carbon atoms or a substituted or unsubstituted aryl group having 6 to 30 carbon atoms,

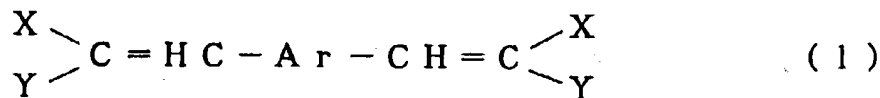
that does not cause crystallization and/or development of dark spots to occur at 85°C for at least 200 hours during driving of the device, where an energy gap of the compound represented by general formula (2) is greater than an energy gap of the compound represented by general formula (1), ~~that does not cause crystallization and/or development of dark spots to occur at 85°C for at least 200 hours during driving of the device.~~

13. (Previously Presented) An organic electroluminescence device according to Claim 12, wherein the organic light emitting layer comprises a light emitting material and a bis-condensed aromatic cyclic compound.

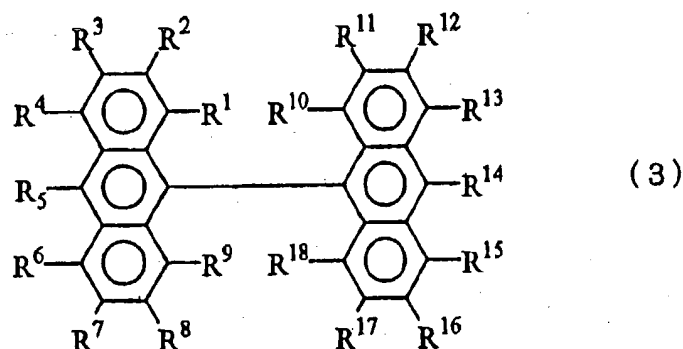
14. (Currently Amended) An organic electroluminescence device according to Claim 12, wherein the organic light emitting layer has a thickness of 5 nm to 0.5 nm μm.

15. (Canceled)

16. (Currently Amended) In an organic electroluminescence device comprising a pair of electrodes comprising an anode and a cathode and a layer of organic compounds comprising at least an organic light emitting layer and disposed between the pair of electrodes, wherein the layer of organic compounds comprises a light emitting material compound represented by the following general formula (1):



wherein X and Y each independently represent a substituted or unsubstituted aryl group having 6 to 50 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3 to 50 carbon atoms and may represent the same group or different groups and Ar represents an arylene group having 6 to 80 carbon atoms, a polyarylene group, a divalent triphenylamine residue group, a divalent heterocyclic group having 3 to 80 carbon atoms or a divalent group formed by bonding said groups to each other, the improvement being that the layer of organic compounds contains a substance for suppressing crystallization that is a bis-condensed aromatic cyclic compound represented by following general formula (3):



wherein  $R^1$  to  $R^{18}$  each independently represent hydrogen atom, a halogen atom, hydroxy group, a substituted or unsubstituted amino group, nitro group, cyano group, a substituted or unsubstituted alkyl group having 1 to 30 carbon atoms, a substituted or unsubstituted cycloalkyl group having 5 to 30 carbon atoms, a substituted or unsubstituted alkenyl group having 3 to 30 carbon atoms, a substituted or unsubstituted alkoxy group having 1 to 30 carbon atoms, a substituted or unsubstituted aromatic hydrocarbon group having 6 to 30 carbon atoms, a substituted or unsubstituted aromatic heterocyclic group having 4 to 30 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 30 carbon atoms, a substituted or unsubstituted aryloxy group having 6 to 30 carbon atoms, or a substituted or unsubstituted alkoxy carbonyl group having 1 to 30 carbon atoms or carboxyl group,

that does not cause crystallization and/or development of dark spots to occur at 85°C for at least 200 hours during driving of the device, where an energy gap of the compound represented by general formula (3) is greater than an energy gap of the compound represented by

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~~general formula (1), that does not cause crystallization and/or development of dark spots to occur at 85°C for at least 200 hours during driving of the device.~~

17. (Previously Presented) An organic electroluminescence device according to Claim 16, wherein the organic light emitting layer comprises a light emitting material and a bis-condensed aromatic cyclic compound.

18. (Previously Presented) An organic electroluminescence device according to Claim 16, wherein the organic light emitting layer has a thickness of 5 nm to 0.5  $\mu\text{m}$ .

19. (Canceled)



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Claims 12-14 and 16-18 are allowed.

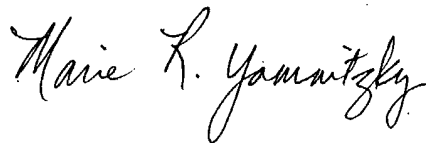
The following is an examiner's statement of reasons for allowance: Compounds of general formulae (1), (2) and (3) are known for use in organic electroluminescent devices. However, the prior art does not disclose or suggest using a compound of general formula (2) or (3) in combination with a compound of general formula (1) wherein the compound of general formula (2) or (3) does not cause crystallization and/or development of dark spots to occur at 85°C for at least 200 hours during driving of the device, and wherein the compound of general formula (2) or (3) has a greater energy gap than the compound of general formula (1).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax numbers for Art Unit 1774 is (703) 872-9306 for all official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY  
February 27, 2004



MARIE YAMNITZKY  
PRIMARY EXAMINER

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